Reform and Representation:
Assessing California’s Top-Two Primary and Redistricting Commission

Abstract: Can electoral reforms such as an independent redistricting commission and the top-two primary create conditions that lead to better legislative representation? We explore this question by presenting a new method for measuring a key indicator of representation – the congruence between a legislator’s ideological position and the average position of her district’s voters. We do this by combining two cutting-edge methods: the joint classification of voters and political candidates on the same ideological scale using a common policy survey, along with multilevel regression and post-stratification to estimate the position of the average voter across many districts in multiple elections. After describing and validating our approach, we use it to study the recent impact of electoral reforms in California. We draw on the predictions of reforms and the logic of spatial voting to show how the Citizens Redistricting Commission and the top-two primary might lead to a better fit between the state’s voters and lawmakers. Then, by comparing levels of congruence and other trends in elections before (2010) and after (2012) the implementation of reform, we show that California’s electoral experiments did not bring their hoped-for effects. If anything, legislators strayed further from their district’s average voter in 2012. In sum, this paper lays out a replicable, practical method of gauging legislative representation, and applies it to show that attempts to improve representation do not always bear fruit.

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A fundamental challenge for any governing system is to elect representatives who accurately represent their constituents. In order to meet this challenge, democracies have often engaged in “electoral engineering”: making choices about their basic electoral system (Norris 2004) or switching systems as in New Zealand (Vowles 1995), shifting the way that legislative districts are drawn (Cain 1984, Winburn 2008), making alterations to the way that ballots are cast (Engstrom and Kernell 2005), imposing limits on terms in Mexico, Costa Rica, and the United States (Carey 1998, Kousser 2005), and modifying the formal role of parties (Argersinger 1980, Masket 2007) in order to achieve better representation of the voters’ collective will. Can electoral engineering lead to improved representation? Will the politicians elected in new districts or under new rules take positions that better reflect voter desires?

The state of California engaged in a grand experiment of electoral engineering in 2012, implementing two major reforms. All legislative districts in that election were drawn by California’s first-in-the-nation Citizens’ Redistricting Commission, and the elections were contested under the new “top-two” primary rules in the hopes of fixing state government by electing lawmakers who better matched what voters wanted. Did these reforms succeed in improving representation?

In this paper, we propose a new metric to evaluate the success of electoral engineering and thus to assess the health of a democracy: the match between the policy preferences of the median voter in every district and the position of the legislator representing this district. There is, of course, a long and important literature on the impacts of reforms to primary election rules and of redistricting processes. Scholars have measured, separately, their effects on voter behavior, district characteristics, or legislative roll calls. For instance, they have studied the impact of redistricting institutions on the competitiveness of districts (McGhee and Kogan 2011) as well as the effect of primary election rules on the representativeness of electorates (Marshall 1978, Kaufman, Gimpell, Hoffman 2003), on crossover voting and voter turnout (Gaines and Tam Cho 2002, Sides, Cohen...
and Citrin 2002, Kousser 2002, Alvarez and Nagler 2002), on moderation vs. extremism among legislators (Gerber and Morton 1998, McGhee 2008, Bullock and Clinton 2011, Ahler, Citrin, and Lenz 2013), and on each lawmaker’s centrality to the voting network of legislators (Alvarez and Sinclair 2012). Yet past studies have not looked at voters in combination with the lawmakers representing their districts to see whether politicians deliver what their constituents want. Our project combines data on voters and politicians to see whether California’s reforms led to a closer congruence between the average voter’s policy preference and the legislator’s policy positions in each district.

Measuring the quality of representation has long been a challenge for political scientists (Miller and Stokes 1963). The normative ideal is that the quality of a representation is inversely proportional to the distance of a district’s median voter to its elected representative (Downs 1957). The empirical difficulty comes in measuring both of these positions on a common scale. Yet two recent methodological advances in the study of politics allow us to evaluate the congruence between voters and legislators across districts and time.

The first advance comes in the ability to locate voters and legislators in the same ideological spectrum, by observing their responses to a common set of policy questions. The second advance has come in the multilevel regression and post-stratification (MRP) method, which allows to use a single statewide survey to predict the position of the average voter in every district, across multiple elections. In the next section, we explain how we applied each method to studying California’s 2012 reforms, providing descriptive data illustrating their utility.

Our research combines these methods to evaluate the success of California’s democratic engineering. First, we conduct a poll to put California voters and their representatives in the same ideological space based on their answers to the same set of 46 policy questions. Then, we use the
MRP technique along with district demographics and party registration statistics to estimate the position of the average voter in every district in both the 2010 (pre-reform) and the 2012 (post-reform) elections. By comparing the congruence of voter positions with legislator positions before and after the implementation of the top two primary and the redistricting commission, we can assess whether these reforms improved representation in the state’s assembly, senate, and congressional delegation. In an analysis that at this stage focuses on California’s congressional delegation, we find no evidence that reform improved representation. If anything, California’s congressional candidates and eventual lawmakers became a bit more ideologically extreme, and thus moved further apart from the average voter in their district, in 2012. We evaluate other hopes of reformers (that more competitive districts will yield improved representation) and again do not find clear support.

Our paper begins by laying out the twin challenges to measuring representation: putting voters and politicians on the same ideological scale, and estimating the positions of the average voter in many legislative districts. We describe a way to meet this challenge, and thereby investigate the causes and consequence of improved congruence in legislative representation, which could be replicated at a reasonably low cost in other states and other nations. Then we describe California’s reform experiment in greater detail, laying out our interrupted time series design and addressing the complications of isolating their impacts of the primary and redistricting changes. We use simple spatial reasoning to distinguish between the separating predictions of the two reforms and to develop concrete hypotheses of how they each could lead to a close match between voters and lawmakers. Then we test these hypotheses by examining policy congruence across different types of districts in 2010 and 2012. We conclude by considering the lessons of our analysis for current California politics and for the broader study of political representation.
I. Measuring Representation

A. Locating Voters and Lawmakers on a Joint Ideological Scale

Directly measuring the quality of representation that a political system provides requires, as a first step, measuring the policy positions of both lawmakers and voters and then placing them on the same ideological scale. In the modern era of quantitative studies, scholars have been able to locate elected officials on an ideological spectrum based on the ratings that they receive from interest groups (Poole and Rosenthal 1984), the survey responses they give in election campaigns (Ansolabehere, Snyder, Stewart 2011), and the roll call votes that they cast on a legislative floor (Poole and Rosenthal 1984, Poole and Rosenthal 1997). While ideal point estimation techniques have been dominated by congressional applications, newer work finds applications in California (Masket 2007, Kousser, Lewis and Masket 2007) and state legislatures more broadly (Cox, Kousser, and McCubbins 2010, Shor and McCarty 2011).

On the other hand, for a half-century, researchers have gauged the ideological orientations of voters by asking them to identify as liberal or conservative on some scale. This measure is notoriously noisy and crude, which may be responsible for the extremely weak relationship between ideology and vote choice that is typically found in research on congressional elections. The noisiness of this measure may be because survey respondents “understand the ‘same’ question in vastly different ways (Brady 1985),” which is closely related to what King et al. (2003) term “differential item functioning.” In short, citizens may disagree about what it means to be “liberal,” “moderate,” “conservative,” or somewhere in between. Moreover, they may also have different ideas about what distinguishes one position on the seven-point placement scale from another. Relatedly, Achen (1975) and Ansolabehere et al. (2008) conceptualize the problem of determining individual ideology from the perspective of measurement error. This perspective suggests alternatives to abstract single-
item questions about ideology such as multi-item issue preference scores that evince far greater individual stability than self-reported ideology. They also show that these scales approach the stability of party identification in applications like vote choice.

Yet, even if we had perfect measures of individual ideology, it would not be enough to properly assess congruence in representation. The key is bridging across different political institutions and contexts. Examples include joint estimates of ideology for the U.S. House and Senate (Poole 1998, Groseclose et al. 1999), for presidents and Congress (McCarty and Poole 1995), for presidents, senators, and Supreme Court justices (Bailey and Chang 2001, Bailey et al. 2005), for Supreme Court and Court of Appeals justices (Epstein et al. 2007), and state legislators and Congress (Shor 2010). Identification of these models relies on the existence of bridge actors who make choices that can be construed as votes in multiple settings. For example, Bailey and Chang (2001) compare Congress and the Supreme Court by leveraging the fact that legislators often opine on the cases that the justices have voted on. Common scales are identified by the analyst’s assumptions about the consistency of behavior when a bridge actor moves from one setting to another. Another approach to bridging ideal points across institutions is to see how actors in each group respond to a common set of questions. When legislators and survey respondents are asked to weigh in on exactly the same issues, we can see how they line up on the same ideological scale.

Relatively little has been done to link voters and candidates, despite attempts that date back to Miller and Stokes (1963) and Achen (1978). This is because of the difficulty in meeting the requirements for a test of proximity voting which can be compared to a three-legged stool: we need common space ideological estimates for large numbers of survey respondents and congressional candidates – both incumbents and challengers. Existing approaches fall short in one way or another from these. One approach uses survey data to examine challenger and incumbent positioning and divergence in common space (Ansolabehere et al 2001, Burden 2004), but does nothing to place
individuals in the same scale. One growing literature does characterize a common ideological space for citizens and legislators explicitly but then does not include information on the positions of challengers, incumbents, or both (Herron 2010, Gerber and Lewis 2004, Warshaw and Rodden 2012). Bonica (2012) generates common space estimates of candidates and donors using campaign finance data, but not representative survey respondents with recorded vote choices. Other approaches rely on survey respondents’ perceptions of candidate ideology (Merrill and Grofman 1999, Alvarez and Nagler 1995, Erikson and Romero 1990) but these data are likely to be systematically biased (Conover et al. 1982). In a series of recent studies on the 2006 congressional election, Stone and Simas 2010 and Buttice and Stone 2012 present a novel alternative solution, asking experts to place the congressional candidates on the standard seven-point ideological scale, which are then aggregated and spatial proximity calculated using survey respondents' self-reports. Though an improvement on the older literature, this approach still has to contend with the same issue of noisy self-reports. Furthermore, the analysis makes a strong assumption that experts’ and individuals’ perceptions of the “liberal-conservative” continuum describe a common space. Jessee (2009, 2010) links together citizen preferences with the publicly announced positions of presidential candidates in a common ideological space.

Even the papers that include all three requirements, like Jessee, Stone and their coauthors, do not aggregate opinion to the district level and make comparisons with congressional candidates. Shor (2013) and Shor and Rogowski (2012), however, does so in the context of the 2008 and 2012 national elections. We adopt his approach of asking respondents questions drawn from Project Vote Smart’s “National Political Awareness Test,” that many candidates had already answered. However, his sample sizes were between 4,000 and 5,000 respondents for the entire country, which might not be enough to address questions like those we ask about California’s specific institutional reforms.
Based on Shor’s approach, we conducted a statewide poll of a random sample of 1000 California registered voters in the two weeks leading up to the June, 2012 primary.¹ This poll, administered online by the firm YouGov, asked voters a series of 46 Yes/No questions about their policy preferences, grouped by issue area. These questions, which are reported in Appendix A, were drawn from Project Vote Smart’s survey of candidates for state legislative and congressional office. For the 2010 election, we also supplement the NPAT survey responses with candidate positions noted by Vote Smart's VoteEasy tool. The organization researched answers to a subset of the NPAT survey even for candidates who did not fill out their own surveys.² Even so, we are missing data on a few candidates in California’s House races of 2010 (3 winners) and 2012 (3 incumbents), mostly due to missing data from VoteEasy.

Still, the data that we have on the issue positions of 172 House candidates across 2010 and 2012 enables us to look at the electoral connection between legislators and voters in the vast majority of California districts. As the figures below show, putting voters and politicians on the same ideological scale both confirms the conventional wisdom about California politics and helps to sharpen the picture of its democratic deficiencies.

B. Estimating Voter Positions Across Many Legislative Districts

Measuring and placing voters’ and lawmakers’ ideologies on the same scale is the first step toward quantifying representation. However, in order to see whether a particular legislator shares the ideological position of the typical, or “median,” voter whom she represents we need to also generate estimates of district-level ideology, and to do so for both 2010 and 2012. Since it would be prohibitively expensive to conduct a separate survey in each of California’s 53 congressional

¹ Only 23 respondents claimed they wouldn’t be voting in the upcoming primary.
² Impressively, the organization documents where it found evidence for these candidate positions, and assigns no position where conflicting or no information is found. See http://www.votesmart.org/voteeasy for a contemporary example.
districts, as well as its 120 legislative districts, we need to be able to generate opinion estimates from a single statewide poll (the same poll we used to link voter and lawmaker ideology).

Fortunately, a technique exists for doing this—multilevel repression and poststratification (MRP). MRP was first developed by Gelman and Little (1997) and Park, Gelman and Bafumi (2006), and popularized by Lax and Phillips (2009, 2012). Existing work shows that, when properly implemented, MRP can use as little as a single opinion poll and a relatively simple demographic-geographic model of individual opinion to produce highly accurate estimates of voter preferences by state, congressional district, and even state legislative districts (Lax and Phillips 2009, Warshaw and Rodden 2012).

MRP proceeds in two stages. In the first, individual survey responses and regression analysis are used to estimate the opinions of different types of people. (This is the “multilevel regression” part of MRP). A respondent’s opinions are treated as being, in part, a function of his or her demographic and geographic characteristics. Research has consistently demonstrated that demographic variables are crucial determinants of individuals’ political opinions, particularly their ideological orientation. In addition to demography, survey responses are treated as a function of a respondent’s geographic characteristics (in our case the particular congressional district in which a respondent resides). Why are geographic predictors included? Existing research has shown that place in which people live (e.g., state, region, etc.) is an important predictor of their core political attitudes (Erikson, Wright, and McIver 1993). Lax and Phillips (2009) demonstrate that the inclusion of geographic predictors greatly enhances the accuracy of MRP opinion estimates when compared to models that rely exclusive on demographic predictors. The regression estimates from stage one of MRP provide researchers with an estimated ideology for each respondent type.

The second stage of MRP is referred to as poststratification. Based on data from the U.S.
Census, we know what proportion of a given district’s population is comprised by each demographic-geographic type from stage one. Within each district, we simply take the estimated ideology across every demographic-geographic type, and weight it by its frequency in the population. Finally, these weighted estimates are summed in each district to get a measure of overall district-level ideology (i.e., the ideology of the “median voter”).

We use two distinct applications of MRP. In the first (which for ease of reference we will refer to as “full MRP”), we model respondent ideology as a function of ten race and gender types (males and females broken down into black, Hispanic, white, Asian, and “other”); one of four age groups (18–29, 30–44, 45–64, and 65+); one of five marital groups (married, separated, divorced, widowed, and single); and the respondent’s congressional district. This stage one model of ideology is very similar to existing applications of MRP. We use census microdata for the poststratification stage.

Our second application of MRP, however, is more innovative (for ease of reference we refer to this approach as “babyMRP” or “BabyP”). Here, in the first stage voter ideology is modeled as a function of only a respondent’s partisanship (using four categories: Democrat, Republican, minor party, independent) and the congressional district in which she resides. To poststratify, we use data on district partisan registration, made available by the California Secretary of State. While we would ideally like to include partisanship and demographic variables in the same individual-level model, we cannot do so because of the type of poststratification data that is available (note that no predictor can be included in stage one of MRP that is not also available in the poststratification data). Since the census does not collect data on partisanship we cannot include the partisan identification of respondents in our full MRP model and since the Secretary of State does not collect demographic data as part of the voter registration process we cannot include demographic predictors in Baby MRP. Instead we opt to use two distinct applications of MRP as a robustness check on our results.
Using both full and baby MRP we generate district-level estimates of constituent ideology for both 2010 and 2012. These estimates are generated using our CCES poll, conducted during the spring of 2012. Using this single poll is fine as long as we can safely assume that the relationships between demographics, geography, and ideology have not changed dramatically among voters over the past two years and that respondent ideology does not fluctuate much over the same period. We know the 2010 and 2012 congressional district for each respondent in our poll, which allows us estimate the appropriate district effect.

While peer reviewed research in top political science journals has confirmed that MRP can reliably predict public opinion, we do not need to depend solely on previous research to assert the accuracy of our measures. For this project, we can check our estimates against two measures of district level ideology: one developed by a separate group of researchers and the other actual district-level presidential voting patterns. Completing numerous such comparisons should build confidence in our district level measures, especially with only around 20 respondents per district.

We begin with the comparison to a measure of district ideology developed by Tausanovich and Warshaw (2011). Tausanovich and Warshaw, measure the ideology of all national congressional districts prior to the 2012 redistricting. They pool responses from a variety of surveys to generate a massive pool to do this. In their analysis, the number of respondents per congressional district averaged 600 (many more than we have per district). Figure 1 shows the correlation between their measure of district ideology and ours. As one can see, the correlations between their measure and ours is quite impressive—0.86 for full MRP and 0.87 for baby MRP. This is a good sign that our survey and methodology have produced an accurate estimate of constituent preferences.

Presidential vote is often used as a proxy measure for district ideology, with good reason (see Levendusky et al 2008). When we correlate our measures of district ideology to presidential vote,
noted in Figure 2, we receive similarly positive evidence. The correlation between our 2010 measures of district ideology and the actual Obama vote is 0.77 for full MRP and a stunning 0.94 for baby MRP. The correlations are nearly identical for our 2012 estimates of ideology and the 2012 Obama vote. While we estimate the district means in all of these analyze – even though, following the spatial voting literature, we theorize about the district median – these two measures of the typical voter in a district are often highly correlated. For instance, in our statewide sample, the mean voter is located at an ideal point of -1.8e17, with the median located at -0.03.

Gaining a full picture of the ideological composition of both of these districts, as well as the positions taken by the candidates running to represent them, will now allow us to supplement our statewide quantitative analysis with a sharp focus on two intriguing sets of races. We will be able chart, on the same ideological scale, the positions of each district’s median voter, median Democratic voter, and median Republican voter, as well as each candidate for office. This will allow us to see whether the new districts led to the emergence of candidates who better fit the district median, and whether the top two advantaged those types of candidates. Most importantly, it will allow us to see whether the 2010 or the 2012 elections brought a better match between district medians and the lawmaker who eventually won, a concrete measure of representation that political scientists have long sought.

II. California’s 2012 Reforms

When California’s chronic budget deficits and growing partisan polarization led to calls for major constitutional reform, the state’s voters backed two major changes to its electoral systems. In 2008, voters created the Citizens Redistricting Commission to draw state legislative lines through Proposition 11, and then expanded its authority to congressional districts in 2010. The Commission
was made up of 14 registered voters selected through a complex process of application, screening, and random selection, and given the authority – previously reserved to legislators and the governor – to craft new district lines after the 2010 Census. That year, voters also approved the top-two primary, in which any voter could back any candidate in the spring election, with the top two vote getters, regardless of party, advancing to November’s general election. Each reform first went into effect in 2012.

Both were sold as an antidote to the failures of representation that had increased partisan polarization over the past decade. In the conventional critique, gerrymandered legislative districts and the state’s “semi-closed primary” (in which only independents could cross over into a party’s primary, and then only if that party voluntarily invited them) combined to elect a state legislature and a congressional delegation out of touch with the average voter. In a district safely held by one party, its registrants would come together in the primary to nominate a candidate taking positions that put her in the middle of her party, instead of the middle of her district. Winning the nomination was tantamount to winning the general election, because her party held such a strong registration edge in the district. The nominee would then become the legislator, representing the party’s median voter rather than the district’s median voter, and facing no real threat to her reelection because the contest would be fought out under the same rules that brought her to office.

Each of California’s reforms aimed to fix this system, but was designed to do so through a different path. In the next sections, we set out the intended impacts of the two reforms and develop concrete hypotheses about the empirical patterns that they should, if successful, create. Specifying these divergent effects is crucial, of course, because they were implemented simultaneously between the 2010 and 2012 elections. Yet it is also important to note, for the purposes of our research design, that little else changed in California politics between these two contests. While much of the nation saw a “red surge” that gave Republicans control of Congress, California instead witnessed a
“blue riptide” in which Democrats increased their control of the state legislature and won the governorship and a US Senate race by double-digit margins. California’s electorate because notably more diverse in 2010, with Latino voters composing 23% of the electorate. In 2012, these trends continued, with Democrats again picking up state legislative seats, with the state’s electorate continuing to grow more diverse, and with President Obama carrying the state in a landslide at the top of the ticket.3 With overall political conditions quite similar in 2010 and 2012, California provides a strong interrupted time series research design in which we can study the two major rule changes by comparing representation before and after their implementation. We lay out the expectations that reformers had for their impact below.4

A. The Citizens Redistricting Commission

The authors of Proposition 11 had many hopes for the Citizens Redistricting Commission that it created, with these multiple goals enshrined in a series of redistricting criteria – ranging from adherence to the federal Voting Rights Act to preserving the geographic integrity of existing local governments, neighborhoods, and “communities of interest” to maximizing to the geographic compactness of district – that were often in tension with each other (see Kogan and Kousser 2011). Yet the fundamental hope of many of these reformers, who were united by their revulsion at the previous decade’s “bipartisan gerrymander” that had drawn a legislature full of safe seats for both parties, was that the Commission would create more competition. By drawing many swing districts

3 See the exit polls for the 2010 election (available at http://www.cnn.com/ELECTION/2010/results/polls/#CAG00p1) and 2012 (http://www.cnn.com/election/2012/results/state/CA/president#exit-polls) for measures of the similarity of these electorates.

4 To address the challenges of evaluating these two reforms together, Ahler et al (2013) attempt isolate the impact of top-two with a survey experiment. One concern is that such an experiment takes as fixed the positions of candidates, while the top-two creates incentives for candidates to take different positions. The top-two primary could work by changing candidate positions. If so, simply changing voting rules will not reveal any further effect. We see our two studies as complementary approaches: Ahler et al.’s survey experiment does a better job of isolating one part of the way that top-two works, but is vulnerable to the challenge that candidate positions are not held equal in the world as in their experiment. Our approach, by comparing two elections, allows the set of candidates to change meaningfully, but does not rule out confounding changes between 2010 and 2012. It is comforting that we have similar findings.
that both parties had the chance to win, Commissioners would construct the sorts of contests in which a real electoral threat pushed candidates to match the positions of the average voter. Better representation would come, then, by changing the mix of safe versus swing districts.

The ballot argument in favor of Proposition 11, as well as the statements of its supporters, made the explicit case that the new process would lead to more representative districts. “If Legislators don’t have to compete to get re-elected, they have no accountability to voters,” the initiative’s proponents argued. After describing and critiquing the past system, proponents argued that, “That meant they don’t have to work together to solve problems like education, health care, roads, crime, and the state budget. Proposition 11 will keep politicians tuned-in to voter needs.”

Veteran political observer Tony Quinn spelled out the logic leading from redistricting to better representation more concretely, predicting that the passage of Proposition 11 “will create more competitive districts for the next decade and will require both parties to run more candidates who can win in politically marginal territory.”

The new system could work both by changing the type of candidates who ran for office, and changing the behavior of incumbents. When sitting state Senator Fran Pavley was drawn into a much more competitive San Fernando Valley district, she was forced to “court voters who are not used to being represented by a Democrat. ‘I thought it would be just sort of a victory lap around my old district for my last time that I’m running for office,’ Pavley said. ‘Instead these redistricting lines caused a dramatic shift in my original plans.’

B. The Top Two Primary

55 California Secretary of State, Voter Information Guide.
Before the new districts got their first trial run in the 2012 elections, voters changed another important electoral rule. The top-two primary, authored by moderate state Senator Abel Maldonado and approved by voters in June of 2010, radically revised the rules of primaries with the aim of creating new general election winners. By allowing independent voters a voice in the primary and guaranteeing no party a place on the general election ballot, the top-two primary was designed to end a system in which polarized primary voters from one party effectively chose a lawmaker for everyone in a district. Under the new rules, voters from any party or without a party affiliation can support any candidate in the primary. With the primary electorate now a microcosm of the full district, candidates located closer to the district median could actually stand a chance in the primary, Maldonado and his allies hoped. When the top two primary candidates, regardless of party, advanced to the November runoff, it would be possible for a more moderate member of the district’s dominant party to win by appealing to a coalition of her own party, independents, and the opposition party that is centered around the district’s ideological median. Thus the new rules sought to bring lawmakers in line with voters by forcing them to win the support of a broader swath of the electorate in the primary, and by changing their incentives in the general election.

Backers of Proposition 15 were clear about these intentions. Former legislator Fred Keeley and former state controller Steve Westly predicted that, “Open primaries would free candidates to take positions on issues that they feel are right for their districts without fear of retribution from political parties or special interests.”8 Importantly, backers of the top-two primary promised that this dynamic would work all across state, not just in the competitive districts that the hoped the Citizens Redistricting Commission would create. The Los Angeles Times reported that, “Even in districts gerrymandered to favor one party, proponents of the constitutional amendment say, it would give independent voters and those in the non-dominant parties some say in who will

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represent them.”9 With broadened participation in the primary and with all voters choosing between two candidates with a real chance of winning in the general election, Proposition 14’s backers promised, the measure “will push our elected officials to begin working together for the common good.”10

C. Empirical Predictions About the Combined Impact of the Reforms

The predictions of reform groups produce a set of clear empirical predictions about how legislative representation should change in California from 2010 to 2012. We illustrate the hoped-for effects of each reform through the reasoning of spatial voting, often used by political scientists to predict where candidates will position themselves and who will win based on the ideological distribution of voters (Downs 1957). Following more formal spatial models, our illustrative tool makes a set of simplifying assumptions that do not always perfectly reflect reality: voters chose the candidate who is closest to them on the ideological spectrum, they have the knowledge to identify that candidate, there is some barrier to entry that prevents an unlimited number of candidates, and a candidate takes a position that remains constant from the primary through the general election. If these assumptions are met, consider who wins in under the rules and political conditions that prevailed across California in 2010. This is the district depicted in Figure 3, a district safely held by one party with semi-closed primary rules making the spring contest a fight mostly within the dominant party. Our hypothetical district resembles the 23rd Congressional District, where Democrats held a 47%-28% registration edge over Republicans, but remember that one party or the other held a substantial edge in nearly every district in 2010. The density curves in our figure show how each party’s voters would be distributed across the ideological spectrum, based on the mean party positions and spread within each party that we found in our statewide sample. In the primary,

a candidate taking a position that matched the Democratic Party’s median voter in the district would win by attracting the most votes within that party. Republican voters would follow suit by nominating a candidate in line with their party’s median voter, who would then lose in the general election as the Democrat rode her party’s registration edge to victory. The winning lawmaker, then, would be a good distance from the district’s median voter.

This ideological gap between the winner and median voter should shrink under top-two primary, its proponents claim. Even in districts in which one party possesses a strong edge in partisan registration, as we see in the first district depicted in Figure 4, the new rules allowing voters from any party along with those who state “No Party Preference” to take part in the primary should advantage candidates who appeal to more than just the largest party’s base. This is illustrated by the fact that the electorate is a single, three-peaked distribution of voters rather than three separate groups of voters. With a broader distribution of voters now in play, primary contestants could pursue a number of different strategies. The exact location of the top-two vote getters would depend on how many candidates entered the contest and where they emerged, but a likely scenario is that one would succeed by positioning herself at the dominant party’s median and the other, often a member of the same party, would make it through to November by taking a stance nearer the district median, winning votes from independents and members of the other party. The general election would be a true contest, with the advantage held by the candidate positioned closest to the middle of the district. Even in a deeply blue or deeply red district, then, the top-two rules should lead to better representation:

*Reform Hypothesis 1. Even in a district safely held by one party, congruence between the district’s median voter and the general election winner should be higher when top-two rules are in place.*

*Reform Hypothesis 2. If two candidates from the dominant party advance out of the primary in a safe district, the candidate closest to the district’s median voter should win in the general election.*
If the Citizens Redistricting Commission brings better representation to California, its effects should be concentrated in the most competitive districts, where legislators are forced to fight for votes. As McGhee and Kogan (2011) show, the Commission-drawn districts created several “highly competitive” districts (six in the state assembly, three in the state senate, and four in the US House delegation) in 2012. After a decade that saw few closely matched districts, the new lines introduced the sort of swing district, contested under top-two primary rules, that is depicted in the second district in Figure 4. Notice that in a district that is more evenly balanced between the major parties, the heights of the curves representing each party’s voters are the same height. Winning the dominant party’s primary is no longer tantamount to victory, forcing candidates to look ahead to the general election by taking positions attractive to independent voters. They are also pushed toward the center by the top-two rules, which allow any voter to cast a ballot for any candidate in the primary. The candidates who make it through the primary, then, will not be as extreme as each party’s median voter, and the ultimate winner in the general election will be the one located closest to the district median (our model predicts an equal chance for each party if both parties compose equal shares of the electorate, but any slight registration edge would grant an electoral edge).

If this logic plays out in California elections, legislative representation should improve in politically contested territory. The Commission’s work might not change politics in solidly blue areas such as San Francisco or Los Angeles’ liberal Westside, or in steadfastly red areas in the Central Valley or southern Orange County. But in new battleground districts drawn in places like the Inland Empire, the Bay Area exurbs, Sacramento, the border between Los Angeles and Orange Counties, and Ventura, politics should change. The Democratic and Republican Parties will face a clear incentive to run more moderate candidates for office in these marginal territories, and the winner should be the one most tuned in to voter needs. This leads to two clear hypotheses about the impact of the Citizens Redistricting Commission, implemented along with the top-two rules:
Reform Hypothesis 3. Congruence between the district’s median voter and the general election winner should be higher in a competitive district than in one dominated by one of the parties.

Reform Hypothesis 4. By creating more competitive districts, the Citizens Redistricting Commission’s plans will improve legislator-voter congruence in 2012.

Of course, California’s election may not unfold exactly as reformers intended. There are reasons to be skeptical of whether the new districts and primary rules deliver on their promise, reasons that can be phrased as flaws in the assumptions that underlie the spatial voting logic. In order for either reform to work, voters need to be able to discern the ideological positions of candidates and to support those closest to them. In these down-ballot legislative contests, sorting out a moderate Democrat from a liberal one can be quite difficult, and Ahler, Citrin, and Lenz (2013) find that voters had difficulty locating candidate positions. Incumbents who had taken extremist positions to win under the past rules may be tethered to those positions but still electorally powerful, weakening the impact of the reforms at least in the short run. Candidate entry was also a complicated game in 2012. To avoid splitting their party’s vote across many candidates and failing to get anyone into the top two, party leaders took an increasingly active role in endorsing candidates in the primary and clearing the field. When the party organization settled on a party favorite, this could benefit more extremist candidates favored by the party faithful. When coordination failed and the party vote split, a party could hold a registration edge in a district yet get no candidate through to the general election. This is exactly what happened in the 31st Congressional District in the Inland Empire, where Democrats held a slight registration edge but where four Democratic candidates split the vote and allowed the two Republicans to advance to the general. This dynamic could generate a large gap between what the median voter wanted and what November’s winner delivered, showing how reform might in some cases lead to a widening of the gap between voters and lawmakers.

Alternative Hypothesis 5. In all types of districts, voter-legislator congruence might remain constant or potentially decline after the implementation of redistricting and top-two reform.
III. The Impact of Reform on Legislative Representation

Before testing these hypotheses, we present descriptive figures and analyses confirming that our measures of voter and candidate ideology fit with expectations about California politics, and that there is some spatial content to voting in these elections. Figure 5 draws on our statewide random sample of registered voters to chart their positions, based on responses to the same set of 46 VoteSmart issue position questions. The three curves represent Democratic voters (on the left), independents (in the middle), and Republicans (on the right), with the height of the curve indicating the proportion of voters in each group located in a given position. Based on their survey responses, voters from the two major parties occupy their expected places in the ideological spectrum, with independents centered almost perfectly in the middle. Unsurprisingly, there is very little cross-over between the curve representing Democratic and Republican registrants, indicating that there are only a few moderates in either party who occupy the same centrist ideological ground inhabited by the other party’s moderates. There are independents\(^\text{11}\) located in the middle of the spectrum, a group that now composes 26.9% of California’s electorate.

Figure 6 again reports the positions of voters, but then adds the ideological distributions of elected officials from both parties, allowing us to compare voters with lawmakers. The dashed lines report the positions of all lawmakers elected to the U.S. House combined with the state assembly and senate winners who participated in the VoteSmart survey in the 2010 and 2012 elections. First,

\(^{11}\) We include in the “independent” category voters who are registered with a minor party (6% of the current electorate) as well as those with “no party preference” (20.9%). These figures are taken from the California Secretary of State’s report of registration as of October 22, 2012, which also reported that 43.7% of registrants belonged to the Democratic Party and 29.4% belong to the Republican Party. See the October 22, 2012 Report of Registration, California Secretary of State, accessed at [http://www.sos.ca.gov/electionsrorror-pages/15day-general-12/hist-reg-stats1.pdf](http://www.sos.ca.gov/electionsrorror-pages/15day-general-12/hist-reg-stats1.pdf) in February 2013.
notice that there is no dashed black line, because not a single member of California’s congressional
delegation nor any member of its legislature was elected as an independent or minor party member.\textsuperscript{12}
Independent voters in the middle of the ideological spectrum have little representation. Neither do
either major party’s centrist voters, because elected officials in both parties are more polarized than
California voters. The median Democratic lawmaker is located far to the left of the typical
Democratic voter, just as the median Republican legislator is to the right of that party’s base.\textsuperscript{13}
Moderates in either party are a scarce breed, leaving the middle of the ideological spectrum virtually
uninhabited, providing no representatives to match the policy preferences of voters in the middle. It
is this democratic disconnect – precisely measured in Figure 6, but long bemoaned by observers of
California politics – that inspired the reform efforts that reshaped California elections.

Figure 7 looks at representation in an aggregate sense – as well as political moderation – by
comparing the ideological distributions of candidates first and then of elected lawmakers, at any
level, in 2010 versus 2012. If the reforms shifted candidates and legislators back to the center of the
political spectrum, the dashed lines representing their 2012 positions should be closer to the middle.
Instead, we see that lawmakers shifted marginally to the extremes, particularly in the Republican
Party (where many of the party’s remaining moderates lost in 2012). At least judged by candidate
positions in campaigns, the new rules did not bring the return to moderation that many of their
backers had expected.

Now we proceed from a survey-level analysis comparing voters and candidates to the district
level, using the MRP procedure described in Section II (and focusing on our more predictive

\textsuperscript{12} In 2012, state Assemblymember Nathan Fletcher became an independent as he competed in the San Diego mayor’s
race, but he was elected in 2010 as a Republican (and failed to make it past the primary of the 2012 mayoral contest).
\textsuperscript{13} The difference between the ideological positions of Democratic candidates and Democratic voters is statistically
significant at the 95\% confidence level, while the difference between Republican voters and candidates is not as
substantively large and does not reach statistical significance. While many contemporary observers criticize Republican
officials as extremists relative to California’s electorate, this analysis shows that, at least relative to their own party’s members,
Republican officials are not more extreme than Democrats.
“BabyP” measure). Figure 8 shows the major party candidates and district means for the 53 districts in California for both the pre-reform (2012) and post-reform (2012) elections. Two things are immediately obvious. First, district means are generally fairly centrist throughout California; on the other hand, candidates are generally polarized and divergent. Next, the extent of that divergence is itself rather heterogeneous. Sometimes we get very polarized contests, and other times and places the reverse is true; see the Berman-Sherman matchup in 2012’s District 30, where the two Los Angeles liberals took nearly identical positions. More subtly, it is also occasionally the case that the candidates do not always straddle the district means. While rare, it does happen.

What this figure does not show is who performed best in these contests, the candidate closest to the district median or the one farther away? Table 1 provides some ambiguous answers to this question. We regress each candidate’s November vote share on the absolute value of her distance from the district’s average voter, controlling for party and the year of the election. When considered apart from incumbency status, candidates win more votes in the general election when they are closer to the district’s average voter, according to our measure. Candidates who are farther away from the district’s ideological mean lose votes, with a one-unit increase in squared distance (approximately a one standard deviation change) costing them an estimated 3.3% of the vote. This effect is significant at the 95% confidence level. It suggests that, at least in the general election when they have party labels to guide them, voters are able to reward candidates who take positions closer to them on the ideological spectrum. On the other hand, when incumbency status is included, this effect goes away. This is because, on average, incumbents are closer to voters than challengers, a finding consistent with Groseclose (2001). This result is in itself ambiguous due to questions of endogeneity; perhaps these candidates have won their incumbency status in the past because of their good ideological fit with the district, and after incumbency in taken into account there is no
additional effect of spatial proximity. In any case, the latter set of models do not allow us to make a clean separation between either story.

Now we turn to our central analysis by analyzing the district-by-district distance between candidates and voters to see if California’s electoral reforms delivered better representation. The clear message of the data described below is: “No, not yet.” Figures 9 summarizes our measure of representation – the ideological congruence between a candidate and the average voter in the district where the candidate is running – and summarizes congruence for winning and losing Democratic and Republican congressional election candidates in 2010 and 2012. Here the distances from district means as estimated by BabyP are displayed as density curves (top) and boxplots (bottom). Perfect congruence would be represented by candidate location around 0. Not surprisingly, Democrats and Republicans are quite divergent. And the degree of that divergence has mostly increased or stayed the same in 2012 relative to 2010; quite the opposite of reformer’s hopes and expectations. For both winning Republicans and winning Democrats, the distribution of candidate distances from the average voter is very similar in the two years. There are marginally more candidates located closer to voters in 2010 (the lighter curve) than in 2012 (the darker curve), though this difference is not statistically significant. The lawmakers whom Californians send to Congress are nearly always located away from their district’s average voter and toward their party’s side of the ideological divide, a trend that 2012 did nothing to halt.

There is thus no evidence here that California’s electoral reforms have improved representation, at least in the first post-reform election. In part, this could be a “carry over” effect, because many incumbents elected under the old rules have static ideological positions. If this is the case, we should see a set of “out of touch” incumbents, but we ought observe much a much closer

14 The best that can be said is that things might have gotten even worse if it were not for these reforms. Unfortunately, we cannot address this counterfactual within the scope of this study.
fit between candidates and voters among challengers, especially in 2012 given the creation of more competitive districts and more accommodative rules. In fact, as Figure 10 shows, incumbents are on average much closer to average voters than challengers are. This is, after all, how they became incumbents in the first place. Groseclose (2001) provides an intuition about why this might be so. His theoretical model suggests candidates attempt to minimize spatial distances relative to challengers so as to win elections using their valence advantages, like name recognition. Yet it is discouraging for reformers hoping that, as today’s incumbents eventually leave office, they will necessarily be replaced by challengers located closer to each district’s average voter.

Why did the reforms not bring an immediate improvement in representation? Tests of our more specific hypothesis suggest that voters in California, when they are not guided by party labels, are unable to vote according to the spatial model in the way that the theories behind reform dictate. First, Table 2 addresses the expectation of Hypothesis 2 that, when two candidates of the same party advance from the top-two primary, November voters will be able to distinguish between the positions of these co-partisans to elect the candidate closest to the district’s average voter. This table lists such contests, showing that in half the cases, the candidate closest to the district won, but in the other half the more distant candidate was victorious. This helps to explain why we found no support for Hypothesis 1, that the top-two would improve representation everywhere.

Finally, Figure 11 addresses the expectation in Hypothesis 3 that more competitive districts will yield a better fit between lawmakers and voters. In fact, there is no such link. Perhaps because candidates running in California’s few competitive districts face pressures to conform to party and interest group discipline in order to raise the money necessary for close campaigns, they are not able to converge on the district median in a Downsian manner. The scatterplot show no correlation between a district’s margin of party registration and the distance between candidates and district
voters. An independent redistricting process did indeed deliver a handful more swing congressional districts, but these did not produce better representation.

IV. Conclusion

Our analysis provides a clear lesson for the immediate impact of California’s twin electoral reforms of 2012: neither the Citizens Redistricting Commission nor the top-two primary has halted the continuing partisan polarization of California’s elected lawmakers or their drift away from the average voter in each district. If anything, polarization has increased and the quality of representation has declined. Of course, these trends may change over the long run, as incumbents first elected under old rules eventually leave California politics, as campaign consultants learn how to win from the center rather than following their traditional playbook, or in statewide races in 2014 where voters have more information about candidates. It is possible that representation and polarization would have gotten even worse in the absence of reform, and that a more definitive conclusion could be draw with parallel studies conducted in “control group” states that did not enact electoral changes. When we have a record of roll call votes from those elected in 2012, their positions may appear different from the policy positions that they took in campaigns. The future will provide more information, but for now our results points to the conclusion that these reforms did not fulfill their promise of fundamentally reshaping California politics by electing legislators who were better ideological fit with their districts.

More broadly, this project identifies a new way to study political representation, a concept that is manifestly important on normative grounds. We introduce a relatively low-cost method of studying representation in many districts over time, demonstrating both its empirical validity and its substantive utility. We have used it to see which types of elections lead to better representation, but
this measure of ideological congruence could also be used to see which types of district or which
types of lawmakers provide better representation of voters. It can be implemented in American
federal, state, and local elections, where many candidates take part in the VoteSmart surveys and
where plentiful data on district characteristics exists. Scholars could also implement this method in
other nations or subnational units, as long as they can gather: a. votes cast by lawmakers, b. a poll of
a representative sample of voters asking them to take a position on these roll calls, and c. data on
district characteristics that are predictive of voter positions. Studies of representation are
dramatically improving in today’s data revolution. Our method has a niche in this field. Shor 2010
and Herron and Bafumi (2010) put voters and lawmakers on the same ideological scale, but need
enormous sample sizes in order to get the district-based estimates of representation that make
hypothesis testing possible. This approach might be beyond the funding scope of most researchers.
Warshaw and Tausaovich (forthcoming) pool responses across many polls and use MRP to obtain
district-based estimates of opinion that will stimulate much research, but do not put voters and
lawmakers on the same scale. We present a method of measuring the ideologies of voters,
legislators, and losing candidates together on a single scale and doing so across districts and years for
the price of a single survey with 1000 respondents. This is a replicable way for political scientists to
ask a substantively important question that resonates with scholars and reformers alike: What leads
to better legislative representation?
Appendix A. Policy Questions Used to Scale Voters and Candidates

Please indicate your positions on the following issues (YES/NO). (RANDOMIZE QUESTION ORDER WITHIN SECTIONS)

[Economy/Redistribution (6)]
Do you support making President Bush's tax cuts permanent?
Increase the minimum wage.
Do you support providing direct financial assistance to homeowners facing foreclosure?
Reduce government regulations on the private sector in order to encourage investment and economic expansion.
Increase funding for state job-training programs that re-train displaced workers and teach skills needed in today's job market.
Increase state funds to provide child care for children in low-income working families.

[Abortion (6)]
Abortions should always be legally available.
Prohibit the late-term abortion procedure known as partial-birth abortion.
Should abortions be illegal after the first trimester of pregnancy?
Prohibit public funding of abortions and public funding of organizations that advocate or perform abortions.
Do you support federal funding to create lines of stem cells from new embryos?
Require clinics to give parental notification before performing abortions on minors.

[Social (4)]
Do you support voluntary prayer in public schools?
Should California recognize marriages between same-sex couples?
Do you support abstinence-only sexual education programs?
Legalize physician assisted suicide in California.

[Criminal Justice (6)]
Support the use of the death penalty in California.
Decriminalize the possession of small amounts of marijuana.
Allow doctors to prescribe marijuana to their patients for medicinal purposes.
Ease state restrictions on the purchase and possession of guns.
Minors accused of a violent crime should be prosecuted as adults.
Should citizens be allowed to carry concealed guns?

[Environment (5)]
Enact environmental regulations even if they are stricter than federal law.
Use state funds to clean up former industrial and commercial sites that are contaminated, unused or abandoned.
Encourage further development and use of alternative fuels to reduce pollution.
Support the U.S. re-entering the Kyoto treaty process to limit global warming.
Support opening a select portion of the Arctic National Wildlife Refuge for oil exploration.

[Education (4)]
Allow parents to use vouchers to send their children to any private or religious school.
Provide state funding to increase teacher salaries.
Do you support a merit pay system for teachers?
Is the tenure process for public school teachers producing effective teachers?

[Foreign Policy (5)]
Do you support a policy of pre-emptive military strikes against countries deemed to be a threat to U.S. national security?
Do you support using military tribunals to try suspected terrorists when ordinary civilian courts are deemed inappropriate or impractical?
Should law enforcement agencies have greater discretion to monitor domestic communications, to prevent future terrorist attacks?
Should the United States commit troops to United Nations peacekeeping missions?
Should the United States support the creation of a Palestinian state?

[Health (4)]
Implement a universal health care program to guarantee coverage to all Americans regardless of income.

Do you support requiring individuals to purchase health care insurance?

Do you support monetary limits on damages that can be collected in malpractice lawsuits?

Implement a government-financed single-payer national health care system similar to that of Canada

[Affirmative Action/Immigration (6)]

Should race, ethnicity or gender be taken into account in state agencies’ decisions on public employment?

Support affirmative action in public college admissions.

Support amnesty for certain illegal immigrants who already reside in the United States.

Do you support the enforcement of federal immigration laws by state and local police?

Establish English as the official national language.

Decrease the number of legal immigrants allowed into the country.

Congress considered many important bills over the past several years. For each of the following tell us whether you SUPPORT or OPPOSE the legislation in principle.

American Recovery and Reinvestment Act. Authorizes $787 billion in federal spending to stimulate economic growth in the U.S.

American Clean Energy and Security Act. Imposes a cap on carbon emissions and allows companies to trade allowances for carbon emissions. Funds research on renewable energy.

Foreign Intelligence Surveillance Act. Allow U.S. spy agencies to eavesdrop on overseas terrorist suspects without first getting a court order

End Don’t Ask, Don’t Tell. Would allow gays to serve openly in the armed services

Would you approve of the use of U.S. military troops in order to...? (YES/NO) Please check all that apply:

To ensure the supply of oil

Destroy a terrorist camp

Intervene in a region where there is genocide or a civil war

Assist the spread of democracy

Protect American allies under attack by foreign nations
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Figure 1. Our MRP Estimates Closely Correlate with Data from a 2010 House Survey
Figure 2. Our MRP Estimates Strongly Predict Voting Patterns

Pre-Redist MRP and Raw Means vs Actual 2008 Obama Vote

<table>
<thead>
<tr>
<th>Method</th>
<th>Correlation</th>
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<tr>
<td>Raw</td>
<td>-0.59</td>
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<td>MRP</td>
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<tr>
<td>BabyP</td>
<td>-0.94</td>
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Post-Redist MRP and Raw Means vs Actual 2012 Obama Vote

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<td>MRP</td>
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<tr>
<td>BabyP</td>
<td>0.96</td>
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</tbody>
</table>
Figure 3. Spatial Voting Illustration Before Reform
Figure 4. Spatial Voting Illustration After Reform

2012: Safe District, Top-Two Primary

2012: Swing District, Top-Two Primary
Figure 5: Ideological Map of California’s Voters

Estimated Ideal Points of California Voters

Figure 6: California Voters and Elected Officials (U.S. House, State Senate and Assembly)

Ideology of California Voters and Lawmakers
Figure 7. Did Reform Bring More Moderate Candidates and Lawmakers?

**Ideology of Candidates, 2010 vs 2012**

- Democratic Candidates 2010
- Republican Candidates 2010
- Democratic Candidates 2012
- Republican Candidates 2012

**Ideology of Lawmakers, 2010 vs 2012**

- Democratic Lawmakers 2010
- Republican Lawmakers 2010
- Democratic Lawmakers 2012
- Republican Lawmakers 2012
Figure 8. Voter-Candidate Congruence, by Congressional district
Figure 9. The Distance Between District Means and Candidate Positions
Figure 10. This Distance Between Voters and Candidates, incumbents v. challengers
Figure 11. No Correlation Between District Competitiveness and Representation
Table 1. Does Spatial Proximity Affect General Election Vote Shares?

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
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<tbody>
<tr>
<td>Abs. BabyP Dist</td>
<td>−0.06¹</td>
<td>−0.05¹</td>
<td>−0.01</td>
<td>−0.02</td>
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<tr>
<td></td>
<td>(0.03)</td>
<td>(0.03)</td>
<td>(0.02)</td>
<td>(0.03)</td>
</tr>
<tr>
<td>Republican</td>
<td>−0.15***</td>
<td>−0.09***</td>
<td>−0.09***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.03)</td>
<td>(0.02)</td>
<td>(0.02)</td>
<td></td>
</tr>
<tr>
<td>Incumbent</td>
<td>0.24***</td>
<td>0.23***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.04)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interaction</td>
<td></td>
<td></td>
<td>0.02</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
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<td>N</td>
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<td>( R^2 )</td>
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<tr>
<td>adj. ( R^2 )</td>
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<td>0.19</td>
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<td>Resid. sd</td>
<td>0.18</td>
<td>0.17</td>
<td>0.12</td>
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Standard errors in parentheses

¹ significant at \( p < .10 \); * \( p < .05 \); ** \( p < .01 \); *** \( p < .001 \)

**Table 1:** Models of candidate vote share.
Table 2. 2012 Congressional Districts with Top-Two from Same Party

<table>
<thead>
<tr>
<th>District</th>
<th>Candidate</th>
<th>Closest to the District Mean?</th>
<th>Winner?</th>
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<tbody>
<tr>
<td>8</td>
<td>Gregg Imus</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Paul Cook</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>15</td>
<td>Eric Swalwell</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Pete Stark</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Brad Sherman</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Howard Berman*</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>31</td>
<td>Gary Miller</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Bob Dutton</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>44</td>
<td>Janice Hahn</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Laura Richardson</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

Note: There were three races with same party runoffs where we only have NPAT survey answers for the winners, and thus were not able to conduct a comparative analysis: the 35th, 40th, and 43rd districts.

*Note that in the 30th Congressional District, while Howard Berman was located marginally closer to the district median, the two candidates were located only 0.01 points away from each other on our ideological scale.